

## REMARKS

Claims 1-2, 4-13, 15 and 20 are currently pending in the application. Claims 1, 13 and 15 have been amended.

### Claim Amendments

Claims 1, 13 and 15 have been amended to include the recitation that the foam material has a "gel liquid absorption of at least 4 g/g measured by pore volume distribution." Support for this amendment may be found at least in original claim 3 and on page 16 of the specification. The pore volume distribution may be determined by means of a PVD apparatus manufactured by Textile Research Institute, Princeton, USA.

### Chen et al.

Claims 1-2, 4-13, 15 and 20 stand rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over *Chen et al.*, U.S. Patent No. 6,261,679. Applicants respectfully traverse this rejection.

The Office admits that Chen is silent about a distribution of pores of sizes between 0 and 3  $\mu\text{m}$  and silent about the claimed properties of a foam material having an absorption rate at wetting of at least 0.4 ml/s for a round sample having a 50 mm diameter, a liquid distribution capacity at an inclination of 30° of at least 15 g/g, a liquid storage capacity of at least 9% measured through centrifuge retention capacity. The Office asserts that, in the absence of evidence to the contrary, Chen teaches essentially the same process of making the absorbent structure as the present invention. Thus, the Office alleges that the claimed properties are either anticipated by Chen or at least obvious.

However, applicants, in the form of a declaration from Kent Malmgren, now present evidence of the unexpected results of the presently claimed absorbent material as compared to the material taught by Chen. See attached *Declaration of Kent Malmgren*.

The presently claimed material is a liquid absorbent material comprising an open-cell polymeric foam comprising a polysaccharide or polypeptide. The Office applies the teachings of Chen against the presently claimed invention. Chen describes a fibrous material, wherein a foam forming material has been added to the

fibrous material to keep the fibers apart and to create an expanded and highly porous fiber structure. The Chen material is defined in embodiments as a "foam-reinforced fibrous network" wherein the components of the structuring composition or foam play a relatively minor structural role in the final absorbent material, once the fibers have been properly positioned and bound. Column 1, line 50 – column 2, line 4. In Chen, the fibers form the walls in the cellular structure, thus having an open-cell foam characteristic. See, Figures 1 and 2.

However, Chen does not teach or suggest an absorbent material that provides the claimed properties. The Chen material, as similar to the state of the art, is not capable of providing satisfactory liquid distribution capacity without sacrificing satisfactory storage capacity. Moreover, the Chen material, also as similar to the state of the art, is not capable of providing satisfactory values for absorption rate, liquid distribution capacity, and storage capacity while also providing satisfactory gel liquid absorption.

As disclosed in the Declaration of Kent Malmgren, the Chen material was carefully reconstructed and tested in accordance with the teachings of Chen. See *Declaration of Kent Malmgren*, paragraphs 4-7. It was found that the Chen material has the following properties, as compared to the values recited in claim 1:

Sample	Absorption rate (ml/s)	Liquid distribution capacity (g/g)	Storage capacity (%)	Pore volume distribution (g/g)
A	0.49	8.3	12	2.2
B	0.3	10.8	5	1.6
C	0.2	7.1	3	1.7
CLAIM 1	$\geq 0.4$	$\geq 15$	$\geq 9$	$\geq 4$

See *Declaration of Kent Malmgren*, paragraph 16.

Unexpectedly, applicants have discovered a liquid absorbent material that is capable of balancing the claimed properties. The art does not teach or suggest such a material. It is an unexpected result to be able to balance liquid distribution capacity and storage capacity at satisfactory levels. More so, it is unexpected to be able to obtain satisfactory values for absorption rate, liquid distribution capacity, and storage capacity while also providing satisfactory gel liquid absorption.

Unexpectedly, the liquid absorbent materials as defined in the claims of the present application are substantially different than those disclosed by Chen and have different properties. Dissimilar to the present invention, Chen proclaims to be focused on a primarily fibrous absorbent structure in contrast to fiber-reinforced foams. Column 1, lines 63-65. The resulting large fibrous structure pore sizes (500 – 7,000 µm) offer relatively little capillary pressure. Column 42, lines 12-16. To remedy the low capillary pressure of the fibrous structure, Chen discloses the use of open cell foam binder in a manner to also increase capillary pressure. Thus, Chen is focused on using foamable binder for the additional purpose of simply storing capillary liquid. Chen does not suggest any other absorbent function for the open cell foam. Therefore, based on the disclosure of Chen, one skilled in the art would not be motivated and is not taught how to incorporate satisfactory gel liquid storage (measured by pore volume distribution) in an absorbent material.

Accordingly, claims 1-2, 4-13, 15 and 20 are, thus, not anticipated or rendered obvious by Chen.

### Conclusion

Applicants believe all matters raised in the above referenced Office Action have been responded to and that the application is now in condition for allowance. Should the Examiner have any questions regarding this Amendment, or regarding the application in general, the Examiner is invited to contact the undersigned at the number listed below in order to expedite prosecution of the application.

Respectfully submitted,  
BUCHANAN INGERSOLL PC

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By: *T.D. Boone*  
Travis D. Boone  
Registration No. 52,635

P.O. Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620